

WHAT IS CLAIMED IS:

1. A surface-mount type antenna comprising:

a base body made of a substantially prismatic dielectric or magnetic material;

a feeding terminal formed at one end side part of one side surface of the base body;

a ground terminal formed at another end side part of one side surface of the base body; and

a radiating electrode, to one end of which is connected the ground terminal, disposed such that its other end extends from the other end side part of one side surface, through the other end side part of one principal surface of the base body, to the one end side part of one principal surface, then turns to one side surface so as to extend farther toward the other end side part of one principal surface, and is eventually formed into an open end facing substantially perpendicularly with a midpoint of the other end side part of one principal surface,

wherein the feeding terminal is so disposed as to extend from the one end side part of one side surface to the one end side part of one principal surface, and has its open end arranged in proximity to the radiating electrode.

2. A surface-mount type antenna comprising:

a base body made of a substantially prismatic dielectric

or magnetic material;

a feeding terminal formed at one end side part of one side surface of the base body;

a ground terminal formed at another end side part of one side surface of the base body; and

a radiating electrode, to one end of which is connected the ground terminal, disposed such that its other end extends from the other end side part of one side surface, through the other end side parts of one principal surface and another side surface of the base body, to the one end side part of the other side surface, then turns to one end side part of one principal surface so as to extend farther toward the other end side part of one principal surface, and is eventually formed into an open end facing substantially perpendicularly with a midpoint of the other end side part of one principal surface,

wherein the feeding terminal is so disposed as to extend from the one end side part of one side surface to the one end side part of one principal surface, and has its open end arranged in proximity to the radiating electrode.

3. A surface-mount type antenna comprising:

a base body made of a substantially prismatic dielectric or magnetic material;

a feeding terminal formed at one end side part of one side

surface of the base body;

a ground terminal formed at another end side part of one side surface of the base body; and

a radiating electrode, to one end of which is connected the ground terminal, disposed such that its other end extends from the other end side part of one side surface, through the other end side part of one principal surface of the base body, to the one end side part of one principal surface, then extends to the one end side part of one side surface so as to extend farther toward the other end side part of one side surface, and is eventually formed into an open end facing substantially perpendicularly with a midpoint of the other end side part of one side surface,

wherein the feeding terminal has its open end arranged in proximity to the radiating electrode in the one end side part of one side surface.

4. A surface-mount type antenna comprising:

a base body made of a substantially prismatic dielectric or magnetic material;

a feeding terminal formed at one end side part of one side surface of the base body;

a ground terminal formed at another end side part of one side surface of the base body; and

a radiating electrode, to one end of which is connected the ground terminal, disposed such that its other end extends from the other end side part of one side surface, through the other end side parts of one principal surface and another side surface of the base body, to the one end side part of the other side surface, then extends through the one end side part of one principal surface to the one end side part of one side surface so as to extend farther toward the other end side part of one side surface, and is eventually formed into an open end facing substantially perpendicularly with a midpoint of the other end side part of one side surface,

wherein the feeding terminal has its open end arranged in proximity to the radiating electrode in the one end side part of one side surface.

5. The surface-mount type antenna of claim 1, wherein the length of the radiating electrode between the open end and a turned portion on the one end side part of one principal surface is kept in a range of  $1/5$  to  $3/4$  of the length of one principal surface of the base body.

6. The surface-mount type antenna of claim 2, wherein the length of the radiating electrode between the open end and a turned portion on the one end side part of one principal surface

is kept in a range of  $1/5$  to  $3/4$  of the length of one principal surface of the base body.

7. The surface-mount type antenna of claim 3, wherein the length of the radiating electrode between the open end and a turned portion on the one end side part of one side surface is kept in a range of  $1/5$  to  $3/4$  of the length of one side surface of the base body.

8. The surface-mount type antenna of claim 4, wherein the length of the radiating electrode between the open end and a turned portion on the one end side part of one side surface is kept in a range of  $1/5$  to  $3/4$  of the length of one side surface of the base body.

9. The surface-mount type antenna of claim 1, wherein the base body has a through hole which penetrates all the way through from one end face to the other end face thereof, or a groove formed on another principal surface thereof so as to penetrate all the way through from one end face to the other end face.

10. The surface-mount type antenna of claim 2, wherein the base body has a through hole which penetrates all the way through from one end face to the other end face thereof, or a groove

formed on another principal surface thereof so as to penetrate all the way through from one end face to the other end face.

11. The surface-mount type antenna of claim 3, wherein the base body has a through hole which penetrates all the way through from one end face to the other end face thereof, or a groove formed on another principal surface thereof so as to penetrate all the way through from one end face to the other end face.

12. The surface-mount type antenna of claim 4, wherein the base body has a through hole which penetrates all the way through from one end face to the other end face thereof, or a groove formed on another principal surface thereof so as to penetrate all the way through from one end face to the other end face.

13. The surface-mount type antenna of claim 1, wherein the base body is made of a dielectric material having a relative dielectric constant  $\epsilon_r$  which is kept within a range from 3 to 30.

14. The surface-mount type antenna of claim 2, wherein the base body is made of a dielectric material having a relative dielectric constant  $\epsilon_r$  which is kept within a range from 3 to 30.

15. The surface-mount type antenna of claim 3, wherein the base body is made of a dielectric material having a relative dielectric constant  $\epsilon_r$  which is kept within a range from 3 to 30.

16. The surface-mount type antenna of claim 4, wherein the base body is made of a dielectric material having a relative dielectric constant  $\epsilon_r$  which is kept within a range from 3 to 30.

17. The surface-mount type antenna of claim 1, wherein the base body is made of a magnetic material having a relative magnetic permeability  $\mu_r$  which is kept within a range from 1 to 8.

18. The surface-mount type antenna of claim 2, wherein the base body is made of a magnetic material having a relative magnetic permeability  $\mu_r$  which is kept within a range from 1 to 8.

19. The surface-mount type antenna of claim 3, wherein the base body is made of a magnetic material having a relative magnetic permeability  $\mu_r$  which is kept within a range from 1

to 8.

20. The surface-mount type antenna of claim 4, wherein the base body is made of a magnetic material having a relative magnetic permeability  $\mu_r$  which is kept within a range from 1 to 8.

21. An antenna apparatus comprising:

a mounting substrate having formed thereon a feeding electrode, a ground electrode, and a ground conductor layer which is arranged face to face with one side of the ground electrode and has connection with the ground electrode; and  
the surface-mount type antenna of claim 1,

wherein the antenna apparatus is constructed by mounting the surface-mount type antenna on the mounting substrate, with another principal surface of the base body arranged on the top surface of the mounting substrate face to face with the other side of the ground electrode, and simultaneously connecting the feeding terminal and the ground terminal to the feeding electrode and the ground electrode, respectively.

22. An antenna apparatus comprising:

a mounting substrate having formed thereon a feeding electrode, a ground electrode, and a ground conductor layer



which is arranged face to face with one side of the ground electrode and has connection with the ground electrode; and

the surface-mount type antenna of claim 2,

wherein the antenna apparatus is constructed by mounting the surface-mount type antenna on the mounting substrate, with another principal surface of the base body arranged on the top surface of the mounting substrate face to face with the other side of the ground electrode, and simultaneously connecting the feeding terminal and the ground terminal to the feeding electrode and the ground electrode, respectively.

23. An antenna apparatus comprising:

a mounting substrate having formed thereon a feeding electrode, a ground electrode, and a ground conductor layer which is arranged face to face with one side of the ground electrode and has connection with the ground electrode; and

the surface-mount type antenna of claim 3,

wherein the antenna apparatus is constructed by mounting the surface-mount type antenna on the mounting substrate, with another principal surface of the base body arranged on the top surface of the mounting substrate face to face with the other side of the ground electrode, and simultaneously connecting the feeding terminal and the ground terminal to the feeding electrode and the ground electrode, respectively.

24. An antenna apparatus comprising:

a mounting substrate having formed thereon a feeding electrode, a ground electrode, and a ground conductor layer which is arranged face to face with one side of the ground electrode and has connection with the ground electrode; and the surface-mount type antenna of claim 4,

wherein the antenna apparatus is constructed by mounting the surface-mount type antenna on the mounting substrate, with another principal surface of the base body arranged on the top surface of the mounting substrate face to face with the other side of the ground electrode, and simultaneously connecting the feeding terminal and the ground terminal to the feeding electrode and the ground electrode, respectively.